

### ABSTRACT OF THE DISCLOSURE

A radio including a first channel for receiving signals at a first frequency and a second channel for receiving and transmitting signals at a second frequency. A multiplexer connects the first and second channels through an A/D and D/A converter to a digital signal processor. An oscillator is connected to and provides a common sampling frequency to the A/D and D/A converters. The digital signal processor controls the multiplexer and modifies the received digital signals to accommodate for the different carrier frequencies of the channels using the common sampling rate. A frequency synthesizer is connected to the oscillator and provides different frequency signals for the channels. A third channel may be provided for receiving and transmitting signals at a third frequency and is also connected to the multiplexer. The processor is capable of performing communication protocols for at least two of the channels simultaneously.